

WHAT IS CLAIMED IS:

- 1 1. A method for a data communications system, the method comprising:
2 transmitting data in a transport overhead field to at least one network element,
3 the data providing a source identifier and a destination identifier; and
4 using the data in the transport overhead field to provide end-to-end services.

- 1 2. The method of claim 1 wherein the transport overhead field is a J1
2 field in a SONET communication packet.

- 1 3. The method of claim 2 wherein the J1 field includes the source
2 identifier and the destination identifier.

- 1 4. The method of claim 1 further comprising:
2 applying a routing protocol to read the source identifier and the destination
3 identifier.

- 1 5. The method of claim 1 wherein the end-to-end services include one or
2 more of routing, provisioning and restoration of functions.

- 1 6. The method of claim 1 wherein the end-to-end services are path-level
2 services of a SONET communications network.

- 1 7. The method of claim 1 wherein the method is performed in a
2 communication circuit disposed in one of a synchronous optical network (SONET)
3 and a Synchronous Digital Hierarchy (SDH).

- 1 8. The method of claim 7, wherein the communication circuit is
2 implemented as a line card.

- 1 9. The method of claim 7 wherein the communication circuit is a protocol
2 processor.

1 10. The method of claim 1 wherein the data further includes one or more
2 of transport identification data (TID), Internet Protocol (IP) addresses, Common
3 Language Location Information (CLLI) data, and requests for bandwidth.

1 11. The method of claim 1 wherein the data providing the source identifier
2 and the destination identifier avoid manual point-by-point routing of STS-Ns.

1 12. The method of claim 1 further comprising:
2 applying a wavelength routing protocol to the data in the transport overhead
3 field to provide end-to-end services, the wavelength protocol locating
4 new paths for communication.

1 13. The method of claim 12 wherein an intelligent routing software system
2 in combination with the wavelength routing protocol determines end-to-end routing
3 automatically.

1 14. The method of claim 12 wherein the wavelength protocol locating new
2 paths for communication is implemented manually.

1 15. An apparatus disposed in a communication system, the apparatus
2 comprising:
3 means for transmitting data in a transport overhead field to at least one
4 network element, the data providing a source identifier and a
5 destination identifier; and
6 means for using the data in the transport overhead field to provide end-to-end
7 services.

1 16. The apparatus of claim 15 wherein the transport overhead field is a J1
2 field in a SONET communication packet.

1 17. The apparatus of claim 16 wherein the J1 field includes the source
2 identifier and the destination identifier.

- 1 18. The apparatus of claim 15 further comprising:
2 means for applying a routing protocol to read the source identifier and the
3 destination identifier.
- 1 19. The apparatus of claim 15 wherein the end-to-end services include one
2 or more of routing, provisioning and restoration of functions.
- 1 20. The apparatus of claim 15 wherein the end-to-end services are path-
2 level services of a SONET communications network.
- 1 21. The apparatus of claim 15 wherein the apparatus includes a
2 communication circuit disposed in one of a synchronous optical network (SONET)
3 and a Synchronous Digital Hierarchy (SDH).
- 1 22. The apparatus of claim 21 wherein the communication circuit is
2 implemented as a line card.
- 1 23. The apparatus of claim 21 wherein the communication circuit is a
2 protocol processor.
- 1 24. The apparatus of claim 15 wherein the data further includes one or
2 more of transport identification data (TID), Internet Protocol (IP) addresses, Common
3 Language Location Information (CLLI) data, and requests for bandwidth.
- 1 25. The apparatus of claim 15 wherein the data providing the source
2 identifier and the destination identifier avoids manual point-by-point routing of STS-
3 Ns.
- 1 26. The apparatus of claim 15 further comprising:
2 means for applying a wavelength routing protocol to the data in the transport
3 overhead field to provide end-to-end services, the wavelength protocol
4 locating new paths for communication.

1 27. The apparatus of claim 26 wherein an intelligent routing software
2 system in combination with the wavelength routing protocol determines end-to-end
3 routing automatically.

1 28. The apparatus of claim 26 wherein the wavelength protocol locates
2 new paths for communication manually.

1 29. A computer program product for communication, the computer
2 program product comprising:
3 signal bearing media bearing programming adapted to
4 transmit data in a transport overhead field to at least one network element, the
5 data providing a source identifier and a destination identifier; and
6 use the data in the transport overhead field to provide end-to-end services.